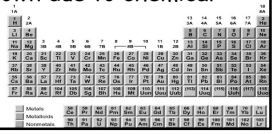
Periodic Table Notes

Design of the Periodic Table

- Classification of Element
  - By looking at where a element is on the periodic table, you can tell about it's chemical and physical properties
- Columns
  - Up and down
  - Called *Families*
  - Elements in Families have similar properties
- Rows
  - Side to Side
  - Called *Periods*
  - Elements in periods DO NOT have similar properties

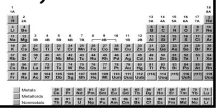
Properties of the metals

- The green elements are metals:
- Physical Properties
  - Luster- Shininess
  - Ductile and malleable- able to be drawn into wires and hammered into sheets
- Chemical Properties
  - Corrosive- wearing down due to chemical reaction
  - Easily lose electrons



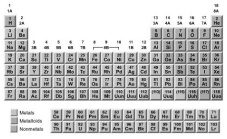
Properties of non-metals

- The blue elements are non-metals:
- Physical Properties
  - No Luster
  - Not ductile or malleable
- Chemical Properties
  - Tend to gain electrons (Which we will discuss in GREAT detail later)



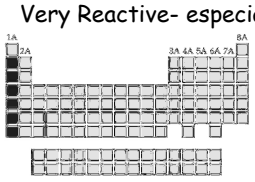
Properties of metalloids

- The purple elements are metalloids
- Properties
  - Can have both of metals and non metals
  - Example:
  - Can be shiny or dull, malleable or not…



Chemical Families

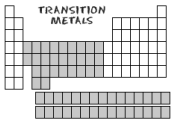
- Alkali Metals- See periodic table
  - One electron on valance shell
  - Soft, shiny and white
  - Good conductors
  - Very Reactive- especially with water



Chemical Families cont…

- Alkaline Earth Metals- See periodic table

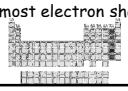
  - 2 valence electrons
  - Very reactive (not as much as alkali)
- Transition Metals- See period table
  - Most have 1 or 2 valance electrons
  - Form different types of bonds



Chemical Families cont…

- Boron Family

  - 3 valance electrons
  - Both metals and metalloids
- Carbon Family
  - 4 valence electrons
  - non-metal, metals and metalloids
- Nitrogen Family
  - 5 valance electrons
- Oxygen Family
  - six valence electrons
- Halogens
  - 7 valence electrons
  - Need only one electron to fill outermost electron shell
  - Very reactive with Alkali metals



Chemical Families cont…

- Noble Gases

  - Full outer shell
  - Very unreactive
  - Often called *inert* gases
- Rare Earth
  - Located at the bottom of the periodic table
  - Have properties very similar to one and other
  - Lanthanoid series
    - soft metals
    - high luster and conductivity
  - Actinoid series